

FIG. 1

09376373



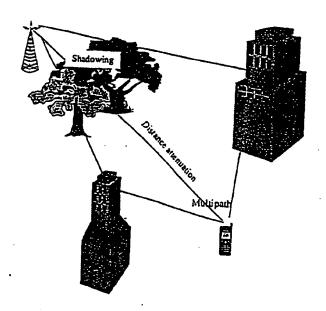
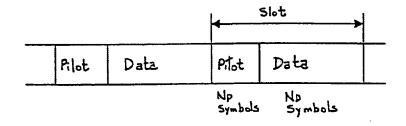


FIG. 2



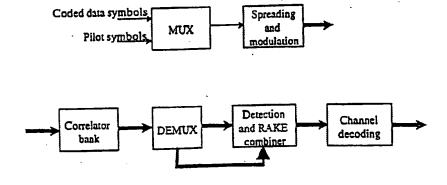


FIG. 3



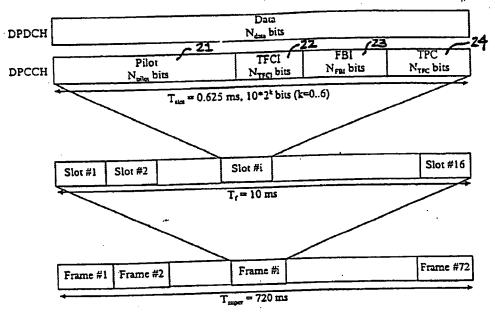


FIG. 4

Channel Bit	Channel Symbol	SF	Bits/	Bits/	N _{pilot}	N _{TPC}	N _{TFCI}	NFEL
Rate (kbps)	Rate (ksps)		Frame	Slot				
16	16	256	160	10	6	2	2	0
16	16	256	160	10	8	2	0	0
16	16	256	160	10	5	2	2	1
	16	256	160	10	7	2	0 .	1
16	<u> </u>	256	160	1 10	[6]	[2]	[0]	[2]
16	16			10	[5]	[1]	[2]	[2]
16	16	256	160	10	1 (2)	1,,,	[-,	1 (3)

FIG. 5



			N_{pilo}	- 6						N _{pilos}	= 8	3		
Bit#	0	1	2	3	4	5	0	1	2	3	4	5 .	6	7
Slot #1.	1	1 .	. 1	ī	.1	1 .	ī	11 %	1	1	1	1	_	. 1
2	1	1	,1 .	ı	0	i	1	1	ı	4	1	Ó	1	74.
3	1	0.	i i	1	0.	1	1	0.5	ı	1	1	0	1	13. 13.
4	1	1	jo ,	ı	0	1	ı		i	0	ı	0	1	i de
5 '	1	1	-ō	1		í.	1	117	1	0	ı	200	ì	
6 ,	1	19	۰٥.	1	1,		1		i	-0	i	**************************************	1	·3.5
7	1	o.	1	1	0	٥	1	0	t	1	1	· 0	1	Ô
8	1		Ò	1	ō		ı	i.	t	0	1	0	,	
9	1		1 4	i	0 .	0.	1	13	i	Ti-	1		•	-
10	1	o -		ı	0.5	11	ŀ		1	214	,		ì	
11 .	1			ı		o i	ı		1		1		•	
12	1	0		1	0	ş.:	ı	0	1		1			
13	1	Õ	0 7	I	0	. ·	ı	0	1	0.	ı	0.4		
14	,	ì	0	1	0	0	i		1	0	1		,	
15	1	0	, 1	1	0		1	0	1			i i		
16	1	0	0	1	0	0	1	0		0				

FIG. 6

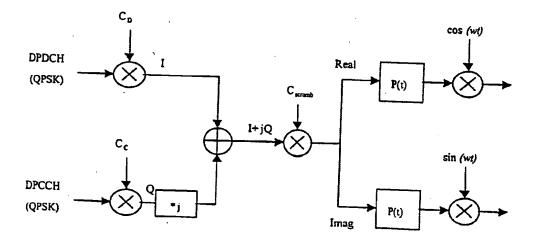


FIG. 7

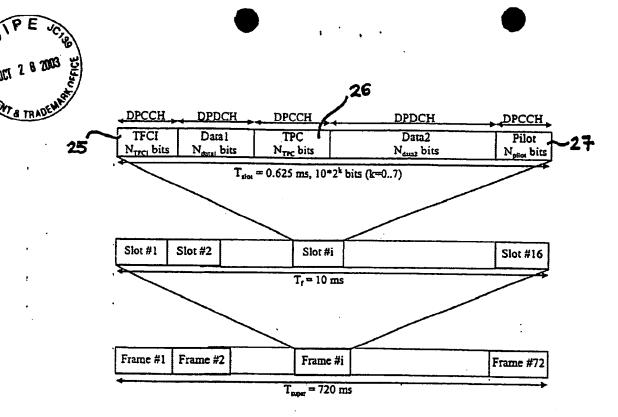
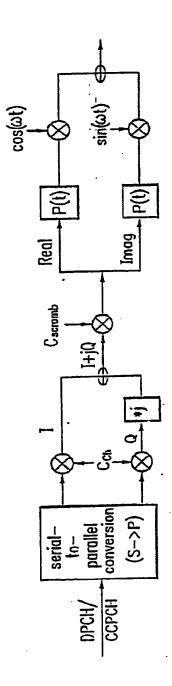


FIG. 8

Symbol rate	8	ksps	16,	,32,64	,128	Sksps			256	5,512	102	4ksps		
Symbol #	0	1	0	1	2	3	0	1.	2	3	4	.5	6	7
Slot # 1	11	2113	11	.11.	11	-11	11	11	11	11-	11	11	11	10
2	11	511	11	11	11	01	111	10.	11	10	11	10	11	οī
3	11	1 10	11	01	11	01	11	10	- 11	01.	11	11	11	01
4	11	01	11	10	11	01	11	ü	11	ÔÌ:	11	00	11	10
5	11	lo	11	10	11	11	11	11	11	00	11	01	11	10
6	11	10	11	10	11		11	iì.	11	11	13	01	11	10
7	n	oî	11	01	11	00	11	10	11	71	11	01	11	10
8	11	.00	11	10	11	01	11	01	11	00	n	10	11	00
9	11	.00	11	71	11	00	11	fi.	11	10	11	00	11	Öl
10	11	10	11	01	11	01	11	01	11		11	117	11	00
11	11	10	11	11	11	10	11	ĩo-	11	10	11	11	11	10
12	11	111	11	ŌĨ	11	01	11	01	11	10	11	10	11	00
13	11	10	11	00	11	01	11	10	11	101	11	ni Š	н	10
14	11	11	11	10	11	00	11	00	11	10	11	10	11	00
15	11	00	11	01	11	00	11	01	11	io	11		11	00
16	11	00	11	. 60	11	00	11	10	11	00	11	00	11	00

FIG. 9





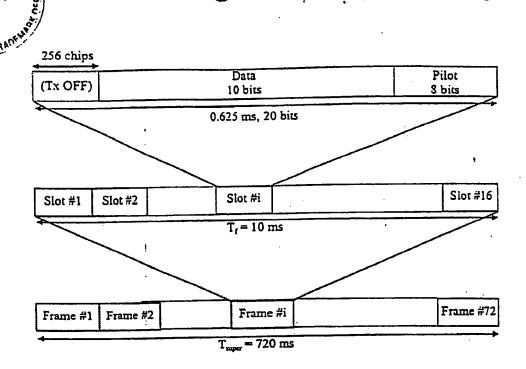


FIG. 11A

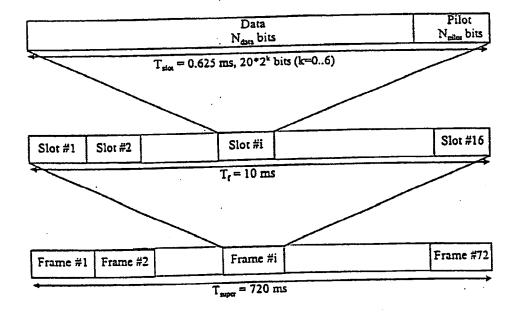


FIG. 11B



	Frame Synchronization Words	
Slot Number	1 2 3 4 5L	
	$C_1 = (1 \ 1 \ 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 0 \ $	1
	$C_2 = (1 \ 0 \ 0 \ 0 \ 1 \ 0 \ 1 \ 0 \ 1 \ 1 \ $	
	$C_3 = (1\ 1\ 0\ 1\ 1\ 1\ 0\ 0\ 0\ 0\ 1\ 0\ 0\ 0\ 1\ 1)$	
	$C_4 = (0\ 1\ 1\ 1\ 0\ 1\ 1\ 0\ 1\ 0\ 0\ 1\ 0\ 1)$	
	$C_5 = (1\ 0\ 1\ 1\ 0\ 0\ 0\ 0\ 1\ 0\ 1\ 1\ 1\ 1)$!
	$C_6 = (1 \ 1 \ 1 \ 0 \ 0 \ 1 \ 0 \ 1 \ 0 \ 0 \ $	1
	$C_7 = (0\ 1\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 0\ 1\ 1\ 1\ 1\ 0\ 0)$;·
	$C_3 = (1 1 1 0 1 0 0 1 0 0 0 1 0 1 1 0)$	

FIG. 12A

<i>R</i> (τ) τ	$T_{o}T$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$R_{\rm E}(\tau)$	16	4	0	4	0	-4	0	-4	-16	-4	0	-4	0	4	0	4
$R_{\rm F}(z)$	16.	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	.0	-4
$R_{G}(t)$	16	4	0	-4	0	4	0	-4	-16	-4	0	4	0	-4	0 -	4
R _H (t)	16	4	0	4	0_	-4	0	4	-16	4	0	-4	0	4	0	-4

R₁

R2

FIG. 12B

 $(R_{\rm E}(z) \div R_{\rm F}(z))$, or $(R_{\rm G}(z) \div R_{\rm H}(z))$

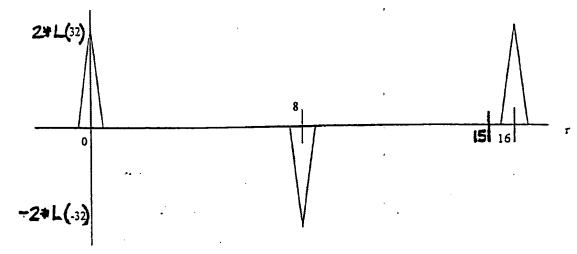


FIG. 13A

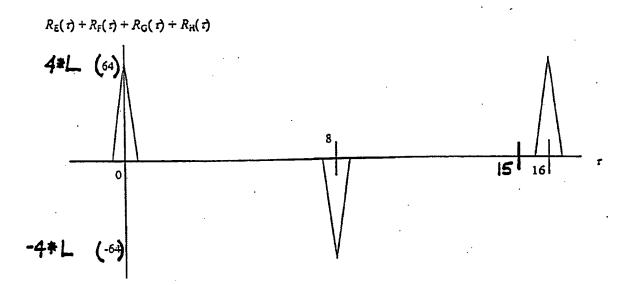


FIG. 13B



	N	- امترا	.5		N _{plm} 1	- 6	
	FRIDAY PERFE		-SEE 2014 COMMENTS		CONTRACTOR OF THE PARTY.		2015-1275-0-12
5 144	7	_			1237 442 4	4	
Bit≓	· 表面 - 表面 - 1 2 5 4	_ 2	16 Sept. 19	0		3	
	17571175711757575		はいるからない かい		20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		SHANNEY TO A
Siot #1	2014 Sec. 192	1		1		1	
3101 #1		4		•			
			40000000000000000000000000000000000000				
2		ł		1	E Track Const	1	
•		٠.	建 在金额建设。	•		•	
	350 400 50 734		32333				
3	20.3 250	1	\$10-23-C1	1	2202253030	ı	S. O. W.
-	4	-	基金交流				
	200					_	
4	2133231053	1		1		1	
_							
5	33232	1		ı		1	
	35.5						
_				ı	建筑相景然兴	1	
6		1		1			
			传经历经				
7				1		1	22 0 0 0 0 0
,		•		٠	新文学公区建	•	
					30.00		
8	1965 E 2007	1	370-22-00-1	1	4 12 3 1 10 2 1	1	320133100
J		. •		•	建设的设计	•	
		٠.				-	
9	2202032	1	200 24 32 1624	ı	\$20 DE 1022	1	建筑0号发展
•	THE REAL PROPERTY.	•	学生发展			•	
•							
10	10 0 A 10 C	1	第50 次第3·0 注:	Ł	250 E	1	3570
			金属 医二种				
		_	119722333				
11		i	2012:02:02E	1		ì	
							25000000
12				1		1	
12	100	ı				ı	
	44.5				TO THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS		
13	200 P	1	2722	1	23/03/23/2013	1	200
		•	THE STATE OF THE S	•		•	The state of the s
			36.5		TO SUPPLY SE		
14	203888191	1	20 35 0 20	1	1500 E 2012	1	F-0.10
•		-					
				_	27.00		
15	20 25 20 31	1	131-35-30:23	1	5305050	I	201 Sept 0
	100		海(2)				
	STATE OF THE STATE	_	到了这些的				
16	一些0.25951.23	ı		ı	STORY STREET	E.	#15.000 F

FIG. 14A

DET 2 8 THAT HE

	1											
		N	pilas =					Npile	. = 8			
Bit#	0	3 2 3	3		6	0	2	2	4		6	33
Slot #1	1		1		1	1			ı		1	
2	ı	200	ı		1	ı	1	0	1		1	
3	1	10.20	ì		1	1	1		1		1	
4	1		ı		1	1			1		1	
5	ı		i	0.0	1	1			1		1	
6	1		1		ı	1			1		1	
7 .	1.		ì	· 100	1	,1	1		1		.1	
8	1	0.	1.	0.00	1	1			1		7	
9	1		1		1	1	1		1		- 50	
10	1		1	6 0	1	1			1			
11	1		1		1	1			1		1	
12	1	0	ı	0 10	1	1	1		-1		1	20
13	1		1		1	ì	1	07	1		ì	
14	1	70.50.50	1		1	1	1		1		1	
15	1	10 60	1		1	1	i	202	ì		i	
16	1	的問題	1		1	1	更0到 1		i	經濟	ľ	数元线

FIG. 14B



N _{pilot}	Pilot bit position#	Corresponding word of length 16
	0	C ₁
_	1	C ₂
5	. 3	C ₃
	. 4	C₄
	1	C ₁
	2	C ₂
6	4	C ₃
	5	C₄ .
	. 1	. C ₁
·	. 2	C ₂
7	4	C ₃
	5	C ₄
	1	C ₁
	3	C ₂
8	5	. C ₃
	7	C ₄

FIG. 14C



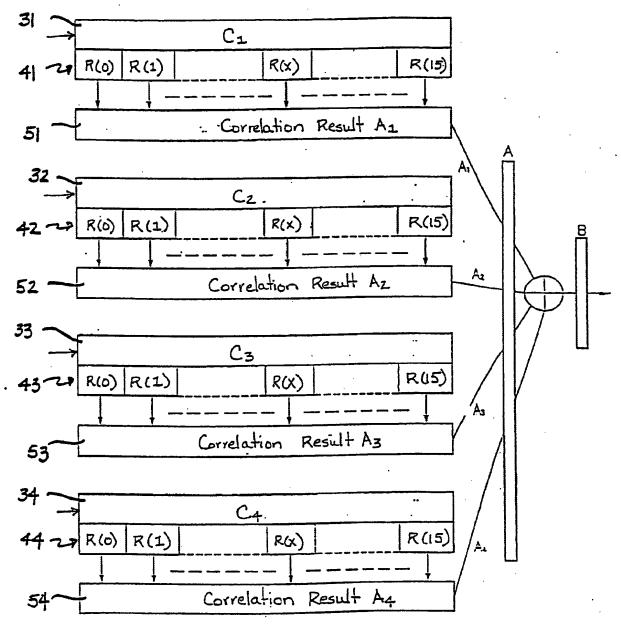


FIG. 14D



	R _x (0)	R, (1)	R _x (2)	R _x (3)	R _x (4)			R _x (7)	R _x (8)	R _x (9)	R _x (10)	R _x (11)	R _x (12)	R _x (13)	R _x (14)	R _x (15)
A _i POINT	16	4	0	4	0	-4	0		-16	-4	0	-4	0	4	0	4
A ₂ POINT	16	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	0	-4
A ₃ POINT	16	4	0	4	0	-4	0	-4	-16	-4	0	-4	0	4	0	4
A. POINT	16	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	0 -	-4
B	64	0	0	0	0	0	0	0	-64	0	0	0	0	0	0	0

FIG. 14E

		R _x (1)		R _x (3)	R _{-x} (4)	- 1	R _x (6)		R _x (8)	R _x (9)	R _x (10)	R _x (11)	R _x (12)	R _x (13)	R ₄ (14)	R ₂ (15)
A _i POINT ÷A ₂ POINT	32	.0	0	0	0	0	0	0	-32	0	0	0	0	0	0	0
A ₃ POINT +A ₄ POINT		0	0	0	0	0	0	0	-32	0	0	0	0	0	0	0 -
A ₁ POINT +A ₄ POINT		0	0	0	0	0	0	0	-32	O	0	0	0	0	0	0
A ₂ POINT + A ₃ POINT		0	0	0	0	0	0	0	-32	0	0	0	0	0	0	0

FIG. 14F

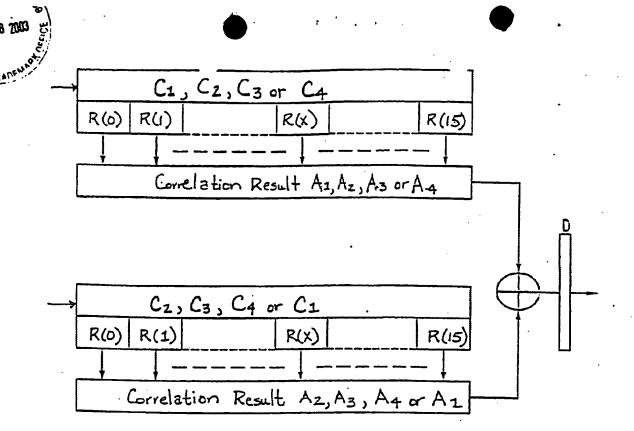


FIG. 14G

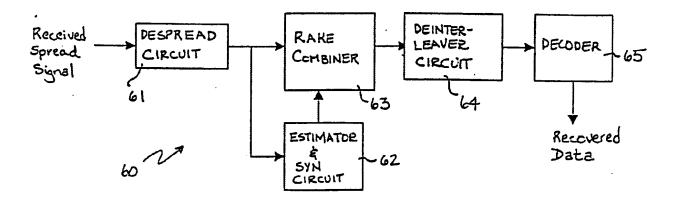


FIG. 14H



	R, (0)	R _x (1)	R _x (2)	R _x (3)	R, (4)			R _x (7)	R _x (8)	R _x (9)	R _x (10)	R _x (11)	R _x (12)	R _x (13)	R _x (14)	R _x (15)
A, POINT	16	-4	-4	8	0	-4	0	0.	-4	0	0	-4	0	8	-4	-4
A ₂ POINT	16	0	0	-4	-4	-4	0	0	12	0	0	-4	-4	-4	0	0
A, POINT	16	4	0	0	4	8	8	0,	0	0	8	8	4	0	0	4
A, POINT	16	0	4	-4	0	0	-4	4	0	4	-4	0	.0	-4	4	0
. B	64	0	0	0	0	0	4	4	8	4	4	0	0	0	0	0

FIG. 14I

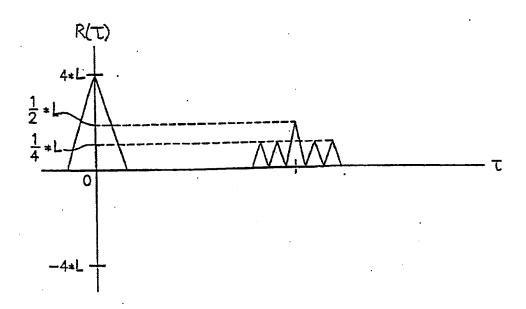


FIG. 14J



	NpL	4		N _{pilot}	= 8					. pilot	= 16	;		
Symbol #	0	413	0	71	2	373	0	河	2	13	` 4	15.3	6	3 5.
Slot #1	11	ìį	11	11	11	10	11	ii :	11	10	11	iï,	11	:01
2.	11	10	11	10	11	<u>-</u> 11	11	10.	11	11	11	01	11	şîi\
· 3	11	00	11	00.	11	01	11	.00	11	.01	11	11	11	01
4	11	.10	11	-10	11	વા	11	10	11	11.	11	10	11	00
5	11	ŢĹ.	11	<u>, 11</u>	11	10	11	II.	11	10:	11	00	11	013
6	11	10	11	10	11		11	10	11		11	01,	11	00
7	11	îi.	11	11.	11	201	11		11	901	ıi	00	11	10
8	11	10	11	. 10	11	00	11	10	11	400 s	11	01	11	11
9	11	. 00	11	: 00	11	01	11	00	11	01	ÍI	:003	11	:10
10	11	01	11	.01	11	200	11	01.	11	200 3	11	\$10.	11	00
11	11	VII.	11	11	11	10	11		11	10	11	00	11	30.
12	11	:0Î	11	201	11	00	11	013	11	1003	11	2013	11	
13	11	00:	11	00	11	101	11	00	11	2013	11	31	11	210
14	11	01	11	01	11	00	11	01	11	300 4	11	00	11	Si
15	11	00	11	00	11	210	11	.00	11	107	11	颤	11	-01
16	11	01	11	01.	11	ii	11	01	11	111	11	10	11	00

FIG. 15A

Symbol rate	Symbol #	Channel	Corresponding Word of length L*16
		I-CH	Cı
$N_{\text{prior}} = 4$	1	Q-CH	C ₂
		I-CH	C _i
	1	Q-CH	.C³
$\mathcal{N}^{\text{bijen}} = \mathcal{S}$		I-CH	C ₃
	. 3	Q-CH	C.
•		I-CH	C,
	1	Q-CH	C ₂
		I-CH	C,
	3	Q-CH	C.
N _{pilot} = 16		I-CH	C,
	5	Q-CH	C ₆
		I-CH	C,
	7	Q-CH	C

FIG. 15B



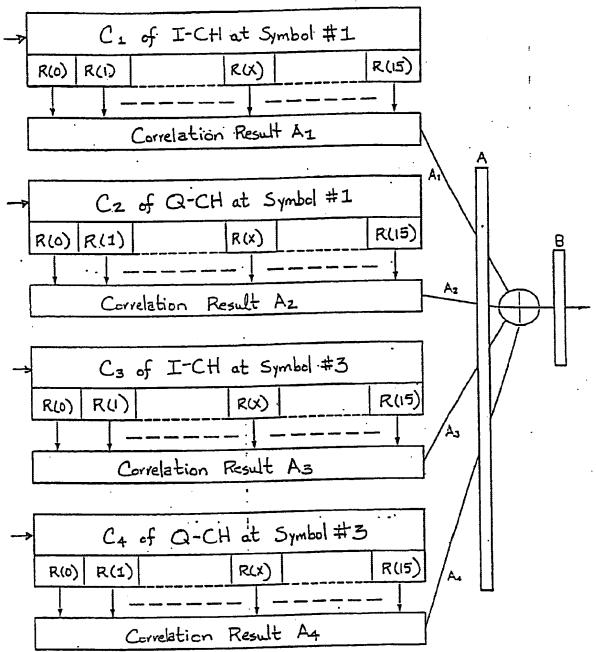


FIG. 15C



Symbol #	0	+2,81	2	2
Dymoor ii	<u> </u>		<u> </u>	14.4.
Slot #1	11	11	11	10
2	11	10	11	11
3	11	00	11	01
4	11	10	11	11
5	11	ii.	11	:10
6	11	-10	11	111
7	11	11.	11	301
8	11	10	11	00
9	11	00	11	30L
10	11	.0I.	11	100
11.	11	行	11	10
. 12	11	-01	11	.00
· 13	11	00	11	oi
14	11	017	11	00
15	11	00	11	10
16	11	.01	11	ii

FIG. 16A

Symbol #	Channel	Corresponding word of length 16
,	I-CH	C ₁
1	Q-CH	C₂
,	I-CH	C ₃
3	Q-CH	C ₄

FIG. 16B



		,,,,,,,	= 8					N _{pilot}	= 1			
Symbol #	0	71	2	3	0	िं।	2	3	4	5	6	与
Slot #1	11	11	11	10	11	11	11	10	11	11	11	01
2	11	10	11	11	11	10	11	11	11	.01	11	11
3	11	00	11	01	11	00	11	01	11	11	11	01
4	11	10	11	11	11	10	11	ាំរ	11	.10	11	00
5	11	<u>l</u> ı	11	10	11	11	11	10	11	,00	11	01
6	11	10	11	11	11	-10]	11	ii	11	č01 ₄	11	+00*
7	11	ii	11	01	11	11	11	01.7	11	00	11	10
8	11	10	11	.00	11	¥10 <u>-</u>	11	00	11	013	11	ni
9	11	200.	11	-01	11	00	11	01	11	100	11	ajō.
° 10	11	01.	11	00	11	01	11	00	11	510	-11	100
11	11	a1	11	10	11		11	103	11	00	11	10
12	11	01	11	00	11	01	11	00	11	01	11	
13	11	00	11	01	11	00	11	2013	11	113	11	10
14	11	or 3	11	ÓÖ	11	301	11	00	11	510	11	
15	11	.00	11	10	11	-00	11	10	11	iis	11	01
16	11	01	11	11	11	01	11	11 2	11	10	11	:00

FIG. 16C

Symbol rate	Symbol #	Channel	Corresponding word of length 16
		I-CH	C _t
	1	Q-CH	C ₁
N _{pilot} = 8		I-CH	C ₃
	3	Q-CH	C.
		I-CH	C ₁
	1	Q-CH	C _i
		I-CH	C ₁
	3	Q-CH	C ₄
N _{pilot} = 16		I-CH	Ci
	5	Q-CH	C ₆
		I-CH	- C ₇
	7	Q-CH	C ₄

FIG. 16D



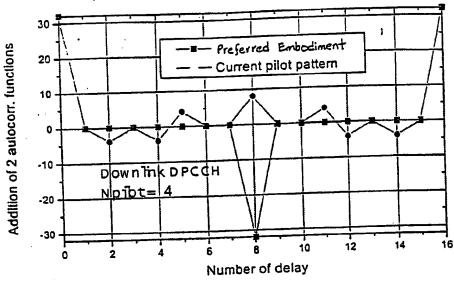


FIG. 17A

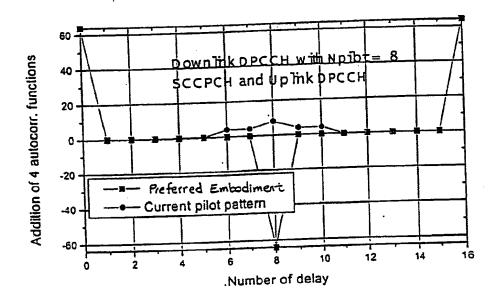


FIG. 17B



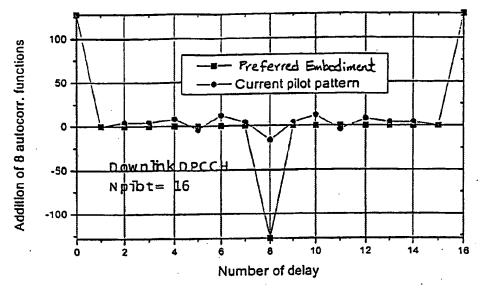


FIG. 17C

Parameters	Downlink
Slot per frame	. 16
Number of bits in the DPCCH (Pilot/TPC/TFCI)	. 4/2/0
Number of bits in the DPDCH per each slot	4
Spreding factor (DPDCH)	. 512
Spreding factor (DPCCH)	512
Modulation	QPSK
3dB bandwidth	4.096MHz
Shaping filter	Root raised cosine (roll off 0.22)
Power amplifier	Ideal
Propogation channel	AWGN

FIG. 18A



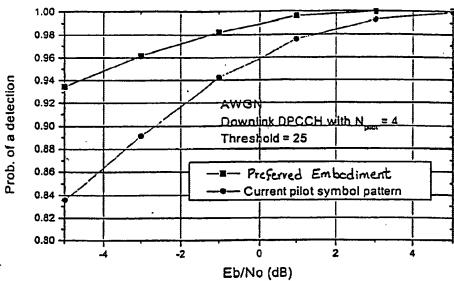


FIG. 18B

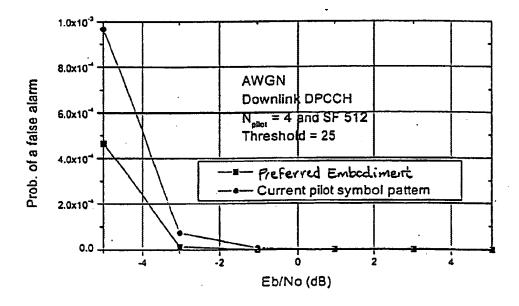


FIG. 18C



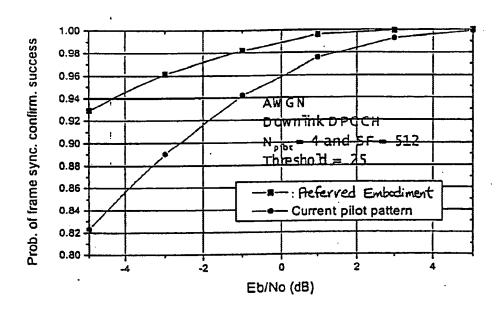


FIG. 18D

	N _{pilot} =		Npilot	= 8					<u>, </u>	- 16			
Symbol #	0 1	0	17	2	3.	0	ŤĨŸ	2	33	4	£5 %	6	77.
Slot #1	01 10	11	00	00	10	11	00 🗓	00	10	11	1113	00	10
2	00 10	11	01	00	ıi	11	01	00	113	11	01	00	00
3	10 10	11	11	00	01.	11	ii.	00	01	11	11	00	10
4	00 10	11	01.	00		11	.01	00	ii	11	\$10	00	ji
5	01, 10	11	00	00	10	11	.00	00	10	11		00	0 <u>1</u>
6	00 10	11	01	00		11	.01	00		11	10	00	100
7	01 10	11	113	00	10.	11	¥11	00	10	11	00	00	Ž1
8	00 10	11	10	00		11	10	00	211	11	01	00	00.
9	10 10	11	NI.	00	oî :	11		00	01	11	100	00	oj-
10	117 10	11	10	00	00	11	10.	00	00	11	10.	00	NI.
- 11	01, 10	11	200	00	10.	11	00.	00	10	11	003	00	01
12	113 10	11	10	00	3 00:	11	103	00	00.	11	2016	00	:00
13	10 10	11	ØI.	00	01	11		00	01	11	00	00	10
14	111 10	11	10	00	00	11	107	00	00	11	01	00	
15	10 10	11	00	00	01	11	÷00	00	01	11	913	00	10
16	11 10	ii	01	00	00	11	-01	00	00.	11	¥10	00	11

FIG. 19A

Symbol rate	Symbol # Channel		Corresponding Word of length 16
		I-CH	-C ₁
$N_{pilot} = 4$	0	Q-СН	C ₂
		I-CH	-C,
	1	Q-СH	C₊
$N_{\text{pilot}} = 8$		I-CH	Ct
	3	Q-CH	-C ₂
		I-CH	-C,
	1 .	Q-CH	C,
	_	I-CH	Cı
	3	Q-CH	-C ₂
$N_{pilot} = 16$		I-CH	-C ₇
	5	Q-CH	C,
		I-CH	C,
	7	Q-CH	-C ₆

FIG. 19B



Symbol #	0	81%	2	3
Slot#1	11	11	00	01
2	11	10	00	00
3	11	00	00	10
. 4	11	10	00	-óo,
5	11	MI.	00	701-
- 6	11	10	00	200
7	11	NI.	00	.10
8	-11	910.	00	1
9	11	00	00	10
10	11	01	00	
11	11	ni.	00	201
12	11	201	00	Tic
13	11	.00	00	210.
14	11	01	00	NI.
15	11	00	. 00	01
16	11	01	00	00

FIG. 19C

Symbol #	Channel	Corresponding word of length 16
	I-CH	C ₁
1	Q-СН	C ₂
	I-CH	-C ₃
3	Q-CH	-C ₄

FIG. 19D



		N _{pilot}	= 8					- 'pilot	- 16			
Symbol #	0	``` `	2	3	0	1	2	3 -	4	5	6	7.
Slot #1	11	00	00	10	11	00	00	10	11	11 4	00	10
2	11	01	00	11	11	01	00	11,	11	01	00	00
3	11	71	00	01	11	11 5	00	01	11	ÎI.	00	10
4	11	01.	00	n,	11	101	00	ii	11	10	00	îï
5	11	00	00	110	11	₃ 00	00	10	11	20	00	01
6	11	01	00	Sir	11	/OL	00	î L	11	10	00	00
7	11		00	10	11	Sir	00	10	11	200	00	01
8	.11	10	00	411	11	10	00	11	11	1014	00	00
9	11	ăi.	00	01	11	Č 113	00	701	11	00	00	01
10	11	10	00	00	11	-10	00	00	11	10	00	îi,
11	11	.00	00	10	11	700	00	10	11	00	00	01
12	11	10	00	00	11	10.	00	100	11	019	00	100
13	11		00	01	11		00	.0j.	11	00	00	10
14	11	10	00	ÕÕ	11	10.	00	00	11	013	00	
15	11	00	00	.01	11	00	00	01	11	H	00	10
16	11	01	00	00	11	01	00	00 1	11	10	00	ίŤ

FIG. 19E

Symbol rate	Symbol #	Channel	Corresponding word of length 16
		I-CH	-C ₃
		Q-CH	C ₄
$N_{pilot} = 8$		I-CH	C _i
	3	Q-CH	-C ₁
		I-CH	-C ₃
	1	Q-CH	C.
		I-CH	Ci
	3	Q-CH	-C;
$N_{pilot} = 16$		I-CH	-C ₇
	5	Q-CH	C _a
		І-СН	C,
	7	Q-CH	-C ₆

FIG. 19F



Sequence	Autocorrelation
$C_1 = (1101111100100000)$	16 4 0 4 0 -4 0 -4 -16 -4 0 -4 0 4 0 4
C ₂ =(1000101001110101)	16 -4 0 -4 0 4 0 4 -16 4 0 4 0 -4 0 -4
$C_3 = (11111101100000100)$	16 4 0 4 0 -4 0 -4 -16 -4 0 -4 0 4 0 4
C4=(0101000110101110)	16 -4 0 -4 0 4 0 4 -16 4 0 4 0 -4 0 -4
C ₅ =(0011101111000100)	16 4 0 4 0 4 0 4 -16 4 0 4 0 4 0 4
C ₆ =(0010010111011010)	16 -4 0 4 0 -4 0 4-16 4 0 -4 0 4 0 -4
$C_7 = (0111000010001111)$	16 4 0 -4 0 4 0 -4 -16 -4 0 4 0 -4 0 4
$C_8 = (1011101001000101)$	16 -4 0 4 0 4 0 4-16 4 0 -4 0 4 0 -4
C ₉ =(0011011111001000)	16 4 0 4 0 -4 0 -4 -16 -4 0 -4 0 4 0 4
C ₁₀ =(0010100111010110)	16 -4 0 -4 0 4 0 4-16 4 0 4 0 -4 0 -4
C11=(11000001001111110)	16 4 0 4 0 -4 0 -4 -16 -4 0 -4 0 4 0 4
C_{12} =(1011100101000110)	16 -4 0 -4 0 4 0 4 -16 4 0 4 0 -4 0 -4
C ₁₃ =(0 1 0 0 0 0 1.1 1 0 1 1 1 1 0 0)	16 4 0 -4 0 4 0 -4 -16 -4 0 4 0 -4 0 4
C ₁₄ =(1000100101110110)	16 -4 0 4 0 -4 0 4-16 4 0 -4 0 4 0 -4
C ₁₅ =(0000100011110111)	16 4 0 -4 0 4 0 -4 -16 -4 0 4 0 -4 0 4
C ₁₆ =(1001000101101110)	16 -4 0 4 0 4 0 4 -16 4 0 -4 0 4 0 -4

FIG. 20A

R (τ) τ	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$R_{E}(\tau)$	16	4	0	4	0	-4	0	-4	-16	4	0	-4	0	4	0	4
R _F (τ)	16	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	0	-4
$R_G(\tau)$	16	4	0	-4	0	4	0	-4	-16	-4	0	4	0	-4	0	4
R _H (τ)	16	-4	0	4	0	4	0	4	-16	4	0	-4	0	4	0	-4

FIG. 20B



		pliot	= 6					•			
Bit#	0		3	C	0	77	2	35.5	4	5 6	特
· Slot#1	ı	iäi	1.	-1 · 0	ı		ı		1	iğ ı	ě
2	ı	100	1		1		ı	0	1		
3	1	0 - 0	1	1 0	ı	0	1	0	1	12 1	0
4	1	0.	1		1		ì	0	1	1	
5	1		1	1 0	1		1		ı		0
6	1		ì	90.0	1		1	0 5	l	0 1	, 0
7	1		1	9	1		1		1		50
8		31300	1		1		1	0.5	1		
9		0 5 0	1		1		1		1	0	
11			1		1		1		1		
12					1		1		1		
13		0 . 0	1	\$0 I	1	***	ı	0.00	1	205	
14	,	0 = 1	ì		1	0.1	ı		1	1 = 1	
15	1	0.5.0	1	0 1	1	# o 1	ı	õ	1	0 1	1
16	1	0 i	1	:0 :0	ı	. 0	1	i \$	1	0 1	0

FIG. 20C

N _{pilots}	Pilot bit position #	Corresponding word
	1	Ci
	2	C ₂
6	. 4 .	C ₃
	5	C ₄
	1	C ₁
	3	C ₂
8	5	C ₃
	7	C4

FIG. 20D



Symbol rate	8	ksps	10	5,32,64,	128	ksps		···	2:	6,512,1	024	ksps		
Symbol #	0		0	常	2	£.	0	7.5	2	3	4	15	6	77
Slot#1	11	in	11	:11	11	70	11	11	11	10	11	00	11	01
2	11	10	11	107	11	11	11	10:	11		11	00	11	10
3	11	00	11	00	11	10	11	00	11	10	11		11	11
4	11	.710	11	10 -	11	ùı	11	10	11		n	10	11	al L
5	11		11		11	10	11		11	101	11	30	11	ioi.
6	11	*10.3	11	10	11	0	11	10	11	.00	11		ıí	:00
7	11		11	iii	11	200	11		11	10	11	100	11	01
8	11	10	11	101	11	3	11	10	11		11	題	11	300
9	11	500	11	00	11	0 1	11	00	11	01	11		11	20
10	11	01	11	01	11	.00	11	01	11	00	11		11	01
11	11		11	113	11	0F.	11		11	01	11	00.	11	100
12	. 11	01	11	01	11	00	11	01	11	00	11	oi.	11	.00
13	11	:00	11	00	11	oj.	11	00	11	01	11	OL.	11	110
14	111	OL.	11	01	11	11	11	01	11	11	11	10	11	<u> </u>
15	n	00	11	00	11	01	11	00_	11	017	11	.0I	11	10
16	11	01	11	01	11	00	11	01	11	00	11	00	11	ŽĮ.

FIG. 20E



Symbol rate	<u> </u>			· · · · · · · · · · · · · · · · · · ·				2048,40	96ks	ps					_	
Symbol #	0	1 (1)	2	.3 c	4	3	6	3. 3	8	9	10		12	13.	14	15
Slot#1	11	119	11	10	11	\$00 \$	11	101 A	11	,00 1-1	11	が見	11	_01	11	01
2	11	10	111	113	11	00	11	-10	11	.00	11	10	u	¥10	11	.00
3	11	00	11	10	11	11.	11	11	11		11	1013	11	:00	11	00
4	l n	-10	11		11	10	11		11	-10	11	01	11	00	u	101
5	111	i i	11	.70	11	10	11	01	11	01	11	201	11	501	11	10
6	11	10	11	00	11	01	11	∓00	11	-10	11	500.7	11	00	11	.00
7	11		11	10	11	10	11	015	11	\$10	11	00	11	103	11	00
8.	11	203	11		11	ilia 1	11	00	11	11	11		11		11	10
9	11	00	11	701	11		11	10.			11	00	11	10	11	影
10	11	ōi	11	100	11	111	11	101	11		11	507	11	OI	11	A
11	ıı		11	oi i	11	00 .	11	100°E	11	00	11	110	11		11	41
12	11	01.	11	00.	11	TOI	11	00	11	01	11	10	11		11	10 10
13	11	00	11	01	11	01	11	10	11	10 -	11	10	11		11	01
14	11	01	11	11	11	10	11	11	11	01	11		11		11	-11
15	11	.00	11	01 <u>.</u>	11	01	11	10.7	11	01	11		11	017	11	211
16	111	01	11	00	11	00	11		11	00	11	00	11	00	11	10

FIG. 20F



Symbol rate	Symbol #	Channel	Corresponding word
- Symbol face			of length 16
01	1	I-CH	C ₁
8ksps	1	Q-CH	C ₂
	•	I-CH	C ₁
	1	Q-CH	C ₂
16, 32, 64, 128ksps		I-CH	C ₃
	3	Q-CH	C4
	_	I-CH	C ₁
	1 .	Q-CH	C ₂
		I-CH	C ₃
256 612 122 1	3	Q-CH	C4
256, 512, 1024ksps	_	I-CH	. C ₅
	5	Q-CH	C ₆
	-	I-CH	C ₇
	7	Q-CH	C _s
		I-CH	Cı
	1	Q-CH	C ₂
	_	I-CH	C3
İ	3	Q-CH	C ₄
		I-CH	C ₅
·	5	Q-CH	C ₆
	_	I-CH	C ₇
2040 4005	7	Q-CH	. C ₈
2048, 4096ksps		I-CH	C,
	9	Q-CH	C ₁₀
		I-CH	C ₁₁
	11	Q-CH	C ₁₃
		I-CH	C ₁₃
	13	Q-CH	C ₁₄
		I-CH	C ₁₅
	15	Q-CH	C ₁₆

FIG. 20G



	,			
Symbol #	o	1	2	3
	l			
Slot #1	11	11: 1	11	10
0.0	i ''	1,5	• • •	251119
		- 1		22.4.5
2	11	10	11	- 325 T T
•	l ''	45.5	••	31
	l .			- 10 EAC
3	11-	. 00	11	200 c
.			••	
1	ŀ			2
4	11	10	11	(1)
T .	l ''		••	
	1			3.4
5	11	31 -	11	* 10.
•		11.77	••	
	ł	1.0		4
6	11	1.10	11	£ 00
•		7 Fig. 22	••	3
		371.3.E		7
7	11		11	สัยรักกั ระ
'		100	••	110 mm E-
	l	A 1		3
8	11	=16-S	11	
•	•	43.472	••	100
	i	2365		
9	11	200	11	35.015.1
	• • •	Z 252	••	
		-		
10	11	6.01	11	-35 nn 2-3
			••	3535
		25.73		1000
11	11	21132	11	401
• •		300	• •	13.44
				CONT. 15
12	11	5×01.32	11	200
***		100		Service of
		A		
13	11	∵00 ∑	11	E:01
1		1		Area co
1	l	-1140		44.74
14	11	.0177	11	整計1条
į į		1.4		25.7
		34 marks		36.34
15	11	* 00 °	1.1	#2(Q1 °
[ļ			1
!	١	12.00		18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
16	11	.301 ∃3	11	31,00

FIG. 20H

Symbol #	Channel	Corresponding word of length 16
	I-CH	Cı
	Q-CH	C ₂
2	I-CH	C ₃
.	Q-CH	Ca

FIG. 20I



	Frame Synchronization Words								
L=15, Slot No.	1 2 3 415								
	$C_1 = (1\ 0\ 0\ 0\ 1\ 1\ 1\ 1\ 0\ 1\ 0\ 1\ 1\ 0\ 0)$								
	$C_2 = (1\ 0\ 1\ 0\ 0\ 1\ 1\ 0\ 1\ 1\ 0\ 0\ 0)$								
	C ₃ =(110001001101011)								
	$C_4 = (0\ 0\ 1\ 0\ 1\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 0\ 1\ 1)$								
	$C_5 = (1 \ 1 \ 1 \ 0 \ 1 \ 0 \ 1 \ 1 \ 0 \ 0 \ $								
	$C_6 = (110111000010100)$								
	$C_7 = (100110101111000)$								
	$C_4 = (0\ 0\ 0\ 0\ 1\ 1\ 1\ 0\ 1\ 1\ 0\ 1)$								

FIG. 21

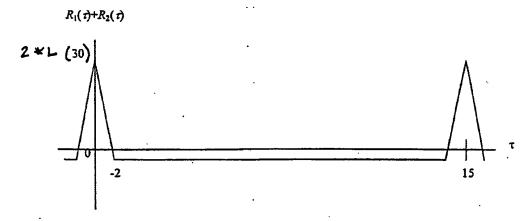


FIG. 22A

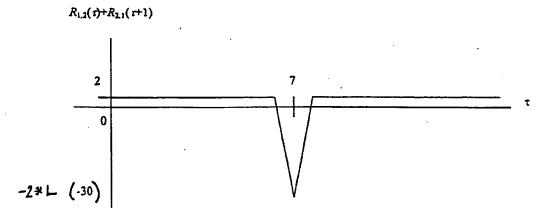


FIG. 22B



 $R_1(\tau) + R_2(\tau) + R_3(\tau) + R_4(\tau)$

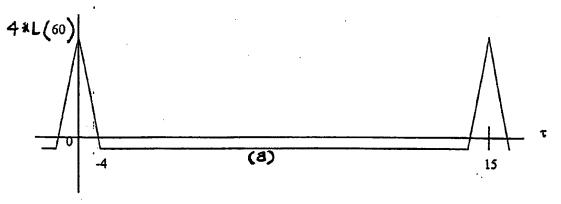
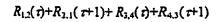


FIG. 22C



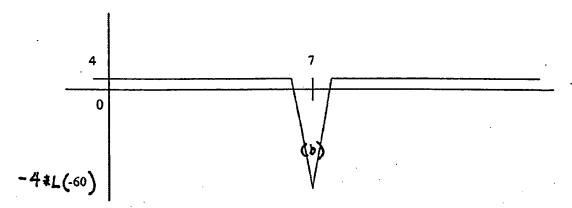


FIG. 22D



	N _{pilot} =2	N _{pilot} =3	N _{pilot} =4
Bit#	# 0 1 1 3	0 1 2	0 112 2 33
Slot#1	201 A 1112	RI 1 91	1 212 1 213
2	0 0	0 1 0	1 202 1 203
3	0 13	0 1 1	1 202 1 202
4	0 - 0	0 1 0	1 0 1 20
5	12 -0.3	12 1 20	1 21 1 20
6	15-51	1 1	1 312 1 312
7	214	1 14	1 212
8	13 0	1 20	1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
9	30 3 51	30 1 1	1 202 1 202
10			
11	0 1 1	00 1 EL	
12	213 203	1 20	1 1 205
13	17 70	1 1 10	1 202
14	0 10	1 20	1 205 1 203
15	学05400	图 1 学0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

FIG. 23A

N_{pilot}	Pilot bit position #	Corresponding word of length 15
	0	Cı
2	1	C ₂
	0	Cı
3	2	C ₂
	1	Ci
4	3	C ₂

FIG. 23B



	N,	ilot=2	, 1	V _{pilot} =	3		Npilot	=4	
Bit#	0		6.0 -≥	1	72	0	31	2	3.
Slot #1	1	7.1.5	SI =	1	48	1	\$21.73	1	141.42
2	1	20	20	1	0	1	30	1	0.2
3	1	国	No :	1		1	30	1	
4	li	0.5	0	ī	6	i	ins	1	
5	i	1903		ī		ī		i	She
6	l i			1		i		1	
7	i			i	1	1		1	
8	li			1		1		1	
و	l i			1		1		1	
. 10	;	英藝		1		1		1	
11	;			1		· i		1	
12	;		Σ¥,	1	34	1		i	
13	;	37.0		1	37.4	ı		1.	
1				i		ı		l	OF
14			W	1	20	l	203	1	0.:
15		上流0点	添りた	- 1	30	1_	1.0	<u> I</u>	0

FIG. 23C

N _{pilot}	Pilot bit position #	Corresponding word of length 15
2	1 .	C ₁
3	0	C ₁
J	2	C ₂
4	1	Ci
	3	C ₂ .

FIG. 23D



FIG. 23E

	N,	oilet =	- 5		N _{pilot}	= 6	
Bit#	0 1	2	3 4 3	0	14.2.7	3	4 5
Slot#1	1 (2)	1	1 0	1	1 2 3	1	ે 1 ુે 20 ં
2	0. 0	1	.10	1	00	1	1
3	0 . 1 .	1	KK COS	1	. 10 % 51	1	0.51
4	0 33 0	1	-0 -0	1	0 2 9 0	1	10 1 2 0 V
5	11 4 50	1	20-212	1	到于是0 分	1	20 - 101
6		1	可是的	1	MARIE	1	21. 70.
7	VIII Y	1	0 3 0 2	1		1	\$0.50°
8	\$1=50	1	\$0 - 0	1	1.1 TO 1	ı	0 2 0
9	02351	1	1.720	1	2022	1	1 0
10		1	Sizord	1		1	
11	0 1	1	50.551	1	20 7 21 7	1	0.00
12	1 700	1		1	\$15,50%	1	1.51
13	312.20	1	#65E6F	1 ·	1 20	1	0.00
14	0 \$ 20	1	XI SHI	1	20 20 2	1	11 11
15	10 學 0	1	和学行	1	*0 * 0	1	FIGURE 1

		N _{pilot} = 7							N _{pilot} = 8						
Bit#	0	11/2	2	3	4	5.5	6	0	113	2	€3,	4	3	6	77
Slot #1	1		913	1		, 0	1	1	413	1		1		1	0-
2	1	30	0	1		0.3	1	1	0	1	20.1	1		1	0.5
3	1	0.	ī	1	_0_	1	1	1	0	1		1	0	1	
4	1	.0.	0	1	0	0.	ı	1	×0.	1	20	1	*0	i	0
5	1	130	0	1	0		1	1		1	0.3	1	0	1	
6	1	6 I		1	71	7 0	1 -	1		1		1		1	90
7	1	1		1	, O ,	0	i	1		1		1	20.	1	0.
8	1	FIG.	50.	1	0	0	1	1		1	705	1	0	1	30 -
. 9	1	0.5		1		到.	1	1	0	1		1		1	200
10	1	7 1		1	1	Ri I	1	1	T.	1	1	1		1	
11	1	20	, l	1	0	n 1	1	1	0	1	-1	1	0	1	1
12	1	-1	0	1	1	1	1	1	1	1	0	1	ì	1	1
13	1	1	0	1	0	· 0	1	1	1	1	0	1	0	1	0
14	1	0	0	1	1	1	I	1	0	1	Ó	1	1	1	1
15	1	0	0	1	1	1	1	1	0	1	0	1	11	1	1

FIG. 23F



N _{pilot}	Pilot bit position #	Corresponding word of length 15
	0	C ₁
5	1	, C ₂
,	3	С3
	4	C ₄
	1	C ₁
	2	, C ₂
6	4	C ₃
	5	C ₄
	1	· C _i
4	2	C ₂
7	. 4	: C ₃
•	5	C4 .
	1	C ₁
8	3	C ₂
•	5	C ₃
	7	C ₄

FIG. 23G



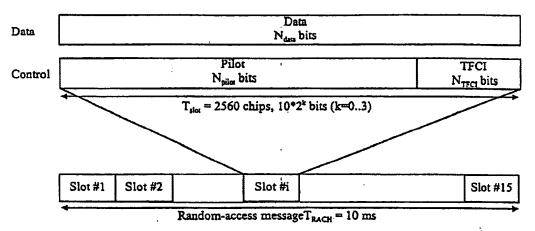


FIG. 23H

Channel Bit Rate (kbps)	Channel Symbol Rate (ksps)	SF	Bits/ Frame	Bits/ Slot	N _{pilot}	N _{TFCI}
15	15	256	150	10	8	2

FIG. 23I

Bit#	0	x1-5	2	第3-1	4	₹5 .∌	6	£7:
Slot #1	1	213	1	21 7	1	111	1	505
2	1	0.4	1	0 📜	1	YIZ.	1	₹0
3	1	0.	1	22	1	÷0.	1	213
4	1	70	1	40 8	1	303	1	*0.
5	1	1-3	1	0-5	1	30.3	1	318
6	1	1-1	1	71 3	1	41.7	1	%0 , 1
7	1	1.1	1	1.5	1	0.3	1	30.5
8	1		1	, O.	1	3.0 .33	1	20.
9	1	0	1	314	1	110	1	20点
10	1	1.9	1		1		1	
11	1	0	1	1	1	0	1	3.15
12	1	7	1	0	1		1	1
13	1	1	1	≒ 0 ÷:	1	.0	1	₹0.
14	1	0	1	.0	1	34	1	i i
15	1	0 /	1	0	1	1	1	<u> </u>

FIG. 23J

OU S B ADD TO

	N _{pilot} =2	N _{pil}	_{ot} = 4		N _{pilot}	= 8					N _{pilot}	= 16	 i		
Symbol #	Z∰O %	0	# 1 . \	0	-3 1 g /	2	3.4	0	1 :	2	3-	4	5	6	7
Slot #1		11	11 00	11	11	11	:10	11	113	11		11	illj	11	10
2	₹ 00 =	11		11	.00	11	30	11	.00	11	10 - 10	11		11	00 1
3	01	11	01	11	01	11	301.	11	01	11	01 ្វ	11	70	11	:00
4	_00 s	11	-00	11	-0₫	11	\$00	11	10	11	.00	11		11	10
5	10.	11	710	11	10	11	01.	11	10	11	401 ,4	11	301 211	11	11.
6	111	11	11 11 10	11		11	10	11		11	10	11	01	11	01
7		11	ili,	11	11 10	11	1000	11	113	11	900	11	\$10	11	î
8	310	11	-10.	11		11	300	11	3103	11	.00	11	10	11	#00
9	₹01	11	01	11	01	11	到0.	11	01	11	210.5	11	₹00°	11	11
10		11	711.	11	211	11	ğl]	11	113	11	11.	11	00	11	11
11	是01,类	11	:01	11	11 01 10	11	2012	11	11 2013	11	¥01 *	11	-11	11	-10
12	数0%	11	10	11	10	11	MI	11	10.	11	air	11	00	11	10
13	10	. 11	310	11	10]	11	200	11	F10 E	11	100	11	2013	11	01
14	2 00 . 2	11	200	11	700	11		11	003	11	2113	11	600	11	400
15	** 00 × 5	11	300	11	4009	11	到锋	11	₹00°4	11	711	11	104	11	÷01÷

FIG. 24A

Symbol rate	Symbol #	Channel	Corresponding word of length 15
N -2	0	I-CH	Cı
N _{pilot} = 2	U	Q-CH	C ₂
N =4	1	I-CH	C ₁
$N_{\text{pilot}} = 4$		Q-CH	C ₂
	1	I-CH	Cı
N _{pilot} = 8	1	Q-CH	C ₂
14pilot - 0	3	I-CH	C ₃
	3	Q-CH	C ₄
	1	I-CH	Cı
		Q-CH	C ₂
	3	I-CH	C ₃
N -16	3	Q-CH	C4
$N_{\text{pilot}} = 16$	5	I-CH	Cs
	3	Q-CH	C ₆
	7	I-CH	C ₇
	<u> </u>	Q-CH	C ₈

FIG. 24B



	$N_{pilot} = 4$		N _{pilot}	= 8					N _{pilet}	= 16	5		
Symbol #	0 5 1	0	14	2	. 3	0	31,3	2	3.4	4	¥.75 €	6	7 :
Slot #1	01 10	11	00	00	: 10	11		0	10	11	(00.3	00	10
2	10 10	11	00	00	201	11	<u>00</u>	00	013	11	10	00	10
3	11, 10	11	11	00	200	11	ii (0	100	11	10	00	.11
4	10 10	11	10	00	01.	11	10 0	00	013	11	00	00	00
5	00 10	11	11	00	ăi.	11	ii) c	00	Fil	11	i01-	00	10
6	01 10	11	,00	00	710	11	€00 <u>0</u> 0	0	210	11	113	00	00
7	01 10	11	.10	00	¥10	11	410 1 0	0	10	11	jõi	00	11
8	00 10	11	210	00	ii	11	10 0	0	iii	11	2102	00	
9	10	11	00	00	₹00	11	7002 C	00	00	11	101	00	01
10	01 10	11	01	00	10	11	ioi, o	0	10.	11	101	00	<u>.</u> 01
11	111 10	11	111	00	00.	11		Ю	100	11	200	00	.10
12	00 10	11	201	00		11	3017 0	Ю		11	00.	00	01
13	00 10	11	10	00	1116	11	10.0	0		11	11	00	200
14	10 10	11	01	00	201	11	013 0	0	301	11	10	00	01
15	10 10	11	.01	00	01	11	(01) C	10	701	11	Hi	00	11

FIG. 24C

Symbol rate	Symbol #	Channel	Corresponding word of length 15
N -4		I-CH	-C ₁
N _{pilet} = 4	0	Q-CH	C ₂
		I-CH	-C ₃
N - 0	1	Q-CH	C ₄
$N_{pilot} = 8$	3	I-CH	C ₁
	3	Q-CH	-C₂
	,	I-CH	-C ₃
	1	Q-CH	C ₄
	3	I-CH	C _i
N - 16	3	Q-CH	-C₂
$N_{pilot} = 16$	5	I-CH	-C ₇
	3	Q-CH	C ₈
	7	I-CH	C₅
	,	Q-CH	-C ₆

FIG. 24D



	N _{pilot} = 8	N _{pilot} = 16
Symbol #	0 -1 2	0 2 3 4 5 6 7
Slot #1	11 -113 11	0 11 11 11 10 11 11 11 10
2	11 00 11	0 11 000 11 10 11 011 11 001
3	11 201 11	1 11 301 11 301 11 10 11 200
4	11 00 11	0 11 100 11 100 11 10 11 10
5	11 10 11	1 11 10 11 01 11 11 11
6	11 11 11 3	0 11 41 11 10 11 01 11 01
7	11 115 11 5	0 11 11 11 00 11 110 11 11
8 -	11 70 11 3	0 11 10 11 100 11 10 11 100
9	11 01 11	0 11 01 11 10 11 200 11 11
10	11 113 11 3	1 11 11 11 11 100 11
11	11 2013 11	1 11 01 11 00 11 11 11 10
12	11 10 11	1 11 10 11 11 11 100 11 110
13	11 10 11	0 11 10 11 100 11 101 11 101
14	11 200 11	1 11 000 11 112 11 000 11 000
15	11 000 11	1 11 00 11 11 11 10 11 01

FIG. 25A

Symbol rate	Symbol #	Channel	Corresponding word of length 15
		I-CH	Ci
N		Q-CH	C ₂
$N_{pilot} = 8$	3	I-CH	C ₃
	3	Q-CH	C ₄
	,	I-CH	Cı
	,	Q-CH	C₂
	3	I-CH	C ₃
	3	Q-CH	C ₄
N _{pilot} = 16	5	I-CH	C _s
	. ,	Q-CH	C ₆
	7	I-CH	C ₇
	,	Q-CH	C ₈

FIG. 25B



		Npilot	= 8					N _{pilot}	= 16	5		
Symbol #	0	1	2	∴ 3	0	4	2	3.	4	5	6.	7.
Slot #1	11	00	00	10	11	00	00	10	11	00 1	00	-10
2	11	00	00	01	11	÷00	00	01	11	10	00	10
3	11	11	00	.00	11	ii.	00	200	11	10	00	11
4	11	10	00	01	11	10-	00	401°	. 11	00	00	00
5	11	11	00	nr	11		00	111.	11	01	00	510
6	11	00	00	10	11	00	00	10	11	113	00	00
7	11	:10	00	10	11	10	00	10	11	01	00	372
8	11	10	00	11	11	510	00	111	11	10	00	ii
9	11	100	00	÷00	11	.00	00	00-	11	01	00	015
10	11	:01	00	10	11	101	00	=10	11	01	00	301
11	11	ii.	00	00.	11	m	00	÷00.	11	-00°	00	10
12	11	01	00		11	701	00		11	004	00	ioi.
13	11	到市	00		11	90	00	如理	11		00	00
14	11	301	00	01	11	01	00	ŌĹ	11	510	00	01
15	11	01	00	01	11	01	00	01,	11		00	ai.

FIG. 25C

Symbol rate	Symbol #	Channel	Corresponding word of length 15
	,	I-CH	-C ₃
NT 0	1	Q-CH	C ₄
$N_{pilot} = 8$	3	I-CH	C ₁
	·	Q-CH	-C₂
	,	I-CH	-C ₃
	1	Q-CH	C.
	3	I-CH	C ₁
N - 16	3	Q-CH	-C₂
$N_{\text{pilot}} = 16$	5	I-CH	-C ₇
	٦	Q-CH	C ₈
	7	I-CH	C ₅
		Q-CH	-C ₆

FIG. 25D

Parameters	Uplink
Number of slots per frame	15
Number of bits in the DPCCH (Pilot/TPC/TFCI/FBI)	6/2/2/0
Number of bits in the DPDCH per each slot	10
Spreading factor (DPDCH)	256
Spreading factor (DPCCH)	256
Modulation	HPSK
3dB bandwidth	3.84MHz
Shaping filter	Root raised cosine (roll off 0.22)
Power amplifier	Ideal
Propagation channel	AWGN

FIG. 26A

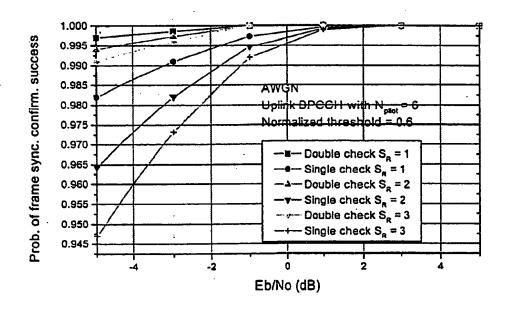


FIG. 26B



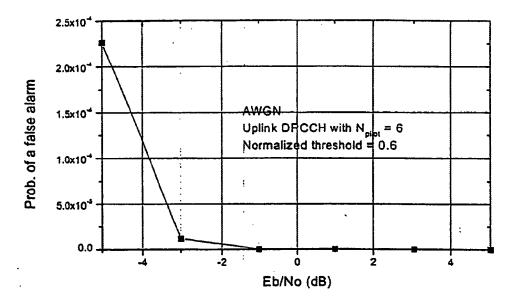


FIG. 26C



FIG. 27

Item	15 slots	16 slots
No. of slots per frame	\$1	16
No. of N _{ritor} per slot	1) Uplink	1) Uplink
	2, 3, 4, 5, 6, 7, 8	5, 6, 7, 8
	2) Downlink	2) Downlink
	2, 4, 8, 16	4, 8, 16, 32
Slot-Slot possible?	Yes	Yes
Double-check possible?	Yes	Yes
	(Two correltors such as auto-correlator (Auto-correlator)	(Auto-correlator)
	and cross-correlator are used)	
Single frame synchronization word can be used for frame synchronization?	Yes since a frame synchronization word has -1 out-of-phase coefficients.	Yes since a frame synchronization May not be feasible because of +4 or -4 out-of-phase word has -1 out-of-phase coefficients. Che +4 or -4 side lobes can be zero through some particular processing using preferred pair of frame synchronization words.
Frame syncrhonzation words	All 8 frame synchronization words are made out of a single PN code	All 8 frame synchronization words have +4 or -4 out-of-phase coefficient and minus peak value at middle shift.
Autocorrelation function	$R(\tau)=15, \ \tau=0$	R(t)=16, t=0
	$R(\tau)=-1$, elsewhere	R(t)=-16, t=8
		$R(\tau)=0,+4$, or -4, elsewhere